

CLAIMS

We hereby claim:

1. A filter material for removing a contaminant from a fluid stream comprising:
 - a) an ordered filter media; and
 - b) an additive impregnated into the filter media and capable of bonding to the contaminant.
2. The filter material of claim 1 wherein the additive is a metal oxide.
3. The filter material of claim 2 wherein the additive is selected from the group consisting of aluminum, iron, titanium and lanthanum.
4. The filter material of claim 2 wherein the additive is lanthanum.
5. The filter material of claim 1 wherein the additive is impregnated in an amount of between 5% and 140% by weight of the filter media.
6. The filter material of claim 1 wherein the contaminant is arsenic.
7. The filter material of claim 1 wherein the filter media is a mesoporous silica molecular sieve.
8. The filter material of claim 1 wherein the additive is in powder form.
9. The filter material of claim 1 wherein the additive is in granular form.
10. The filter material of claim 1 wherein the filter media and impregnated additive are combined with a conventional filter material.
11. The filter material of claim 10 wherein the conventional filter material is a carbon block.
12. The filter material of claim 1 wherein the fluid stream is a water stream.
13. The filter material of claim 1 wherein the fluid stream is a gas stream.

14. A filter material for removing a contaminant from a fluid stream comprising:
 - a) a conventional filter material; and
 - b) an additive intermixed with the conventional filter material, the additive including a metal oxide selected from the group consisting of aluminum, iron, titanium and lanthanum.
15. The filter material of claim 14 wherein the conventional filter material is a carbon block.
16. The filter material of claim 14 wherein the additive is in granular form.
17. A method for forming a filter material for removing a contaminant from a fluid stream, the method comprising the steps of:
 - a) forming an ordered filter media; and
 - b) impregnating an additive into the ordered filter media.
18. The method of claim 17 wherein the step of forming the ordered filter media comprises forming an ordered mesoporous silica molecular sieve.
19. The method of claim 17 wherein the step of impregnating the additive into the filter media is performed by an incipient wetness impregnation technique.
20. The method of claim 17 wherein the step of impregnating the additive into the filter media is performed by a wetness impregnation technique.
21. The method of claim 17 wherein the step of impregnating the additive comprises impregnating the additive into the filter media in an amount between about 5% and about 140% by weight of the filter media.
22. The method of claim 17 wherein the additive is selected from the group consisting of aluminum, iron, titanium and lanthanum.
23. The method of claim 17 wherein the additive is in powdered form.

24. The method of claim 17 wherein the step of forming the ordered filter media comprises forming an ordered mesoporous silica molecular sieve.
25. A method for removing a contaminant from a fluid stream comprising the steps of:
 - a) providing a filter material including a filter media intermixed with an additive; and
 - b) placing the filter media into the fluid stream.
26. The method of claim 25 wherein the additive is selected from the group consisting of aluminum, iron, titanium and lanthanum.
27. The method of claim 25 wherein the step of providing the filter media comprises the steps of:
 - a) forming a filter media; and
 - b) mixing the additive into the filter media.
28. The method of claim 27 wherein the step of forming the filter media comprises forming an ordered mesoporous molecular sieve.
29. The method of claim 28 wherein the step of mixing the additive comprises impregnating the additive into the sieve.
30. The method of claim 27 wherein the filter media is a carbon block.